

EC2020-Fall 2011  
Problem Set 6

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When you write up your answers, your goal should be to (1) be correct, and (2) convince your reader that your answer is correct. **Please STAPLE pages together so that we do not lose them.**

*(This problem set updated: 17 August 2011).*

**Problems:**

MWG Chapter 6: C.3, C.16, 6.D.1-2

MT.5.4 Let

$$Y_1 = \{(-y_1, y_2) \mid y_1 \leq 1 \text{ and } y_2 \leq y_1\}$$

and let

$$Y_2 = \{(-y_1, y_2) \mid y_1 \leq 1 \text{ and } y_2 \leq y_1/2\}.$$

Plot  $Y_1$ ,  $Y_2$ , and  $Y_1 + Y_2$ .

MT.6.1 Prove that the independence axiom implies that indifference curves in the simplex must be parallel.

MT.6.2 Suppose there are three possible outcomes  $\{c_1, c_2, c_3\}$  and that the utility levels assigned to these three outcomes are  $(u_1, u_2, u_3) = (1, 4, 9)$ . Let  $L$  denote a lottery and  $\mathcal{L}$  the space of all simple lotteries over  $c$ . If a consumer has expected utility preferences over  $\mathcal{L}$  prove that these preferences are not robust to monotone transformations of  $(u_1, u_2, u_3)$ .